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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,460	12/17/2001	Jean-Jacques Yon	2541-000008	4022
25191	7590	07/26/2005	EXAMINER	
Burr & Brown PO BOX 7068 SYRACUSE, NY 13261-7068			JOHNSTON, PHILLIP A	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,460

Applicant(s)

YON ET AL.

Examiner

Phillip A. Johnston

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Detailed Action

1. This Office Action is submitted in response to RCE / Amendment filed 5-25-2005, wherein claims 1-16 were previously canceled and claim 17 has been amended. Claims 17-32 are pending.

Claims Rejection - 35 U.S. C. 102

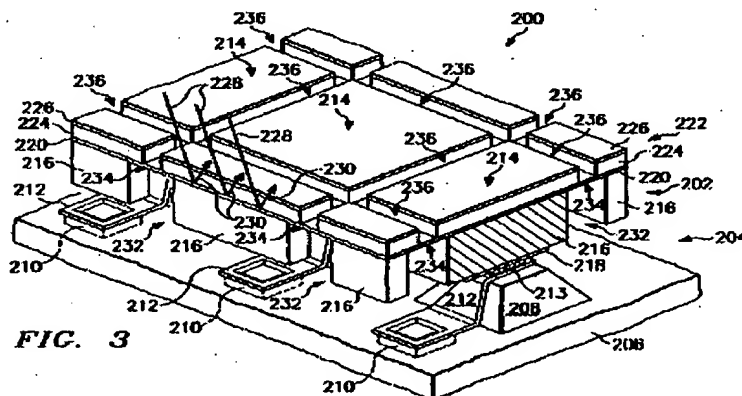
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17-21 are rejected under 35 U.S.C. 102 (b) as being clearly anticipated by Shelton, U.S. Patent No. 5,424,544.

Shelton (54) discloses a focal plane array having plural thermal sensors 214, fabricated on a common electrode assembly 222 (suspended microbridge layer) that, utilizes common electrode 220 to link together the sensors in parallel and provide mechanical support, such that the entire common electrode assembly 222 is isolated above substrate 206 via thermal isolation structure 204, as recited in claims 17-21.

See Column 8, line 22-65; and Figure 3 below;



Shelton (544) also discloses that common electrode 220 is a thermal insulating material formed from cermets, such as silicone monoxide and chromium, characterized by thermally insulating, high mechanical strength, and adequate electrical conductivity. In addition to various cermets, common electrode 220 may be formed from tantalum nitride, tantalum oxide and/or titanium oxide nitride, as recited in claim 19. See Column 8, line 65-68; Column 9, lines 1-5, and 21-26.

Claims Rejection – 35 U.S.C. 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 22-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,424,544 to Shelton, in view of Hornbeck (663), U.S. Patent No. 5,021,663.

Shelton discloses;

(a) Fabricating the focal plane array described above, wherein thermal sensors 214 are formed from a pyroelectric element 216, such as barium strontium titanate (BST). One side of the pyroelectric element 216 is coupled to a contact pad 210 disposed on the integrated circuit substrate 206 through a mesa strip conductor 212 of

the thermal isolation structure 204. The other side of the pyroelectric element 216 is coupled to a common electrode 220 as recited in claim 22. See Abstract; and Figure 3 above;

(b) The multi-layer structure forms a resonant optical cavity tuned to maximize absorption over the eight to twelve micron wavelength of the infrared spectrum, as recited in claim 22. See Column 9, line 50-58;

(c) During processing, channels 232 between pyroelectric elements 216 of thermal sensors 214 are filled with an organic material (sacrificial layer) is removed with an anisotropic etch that uses common electrode 220 as an etch stop 234. Slots 236 may be formed in optical coating 224. Slots 236 may be formed around the entire periphery of thermal sensors 214, as shown in FIG. 3, or intermediate thermal sensors 214. Slots 236 preferably extend through thin outer layer 226, as recited in claims 22-32. See Column 9, line 59-67; and Figure 3 above;

(d) Common electrode 220 is preferably formed from a material that performs adequately as a reflector, an electrical conductor, and an etch stop, while minimizing thermal conductance between adjacent thermal sensors 214. Current thermal detection systems form common electrode 220 out of a reflective metal, such as nichrome, or formed from cermets, such as silicone monoxide and chromium. In addition to various cermets, common electrode 220 may be formed from tantalum nitride, tantalum oxide and/or titanium oxide nitride, as recited in claims 22-32. See Column 9, line 2-5; and 21-26.

Shelton (544) fails to teach the use of a reflector on the surface of the processing circuit (as recited in claim 22), a heat sensitive amorphous layer (as recited in claim 23), and an aluminum layer (as recited in claim 25). However, Hornbeck (663) discloses in Figures 4a and 4b the use of amorphous silicon, titanium nitride and aluminum to fabricate bolometers in a process equivalent to that recited in claims 22-25. See Column 8, 32-56; and Column 13, line 22-26.

Therefore it would have been obvious to one of ordinary skill in the art that the optical coupler of Shelton (544) can be modified to use a ground plane reflector in accordance with Hornbeck (663), to provide enhanced infrared absorption, thereby providing a monolithic array of bolometers with a high fill factor geometry.

Conclusion

6. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 703 872 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

July 14, 2005


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800